

AMSAT News Service Weekly Bulletins

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AMSAT NEWS SERVICE

ANS-317

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:

ans-editor@amsat.org

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SB SAT @ AMSAT \$ANS-317.01

2011 AMSAT Symposium Wrap Up

AMSAT News Service Bulletin 317.01

From AMSAT HQ SILVER SPRING, MD.

November 13, 2011

To All RADIO AMATEURS

BID: \$ANS-317.01

2011 Symposium Proceedings in Stock in AMSAT Store

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AMSAT Online Store Manager, Bruce Paige, KK5D0 has added the Proceedings of the AMSAT-NA 29th Space Symposium and AMSAT-NA Annual Meeting to the AMSAT online store in the Publications Department:

<http://www.amsat-na.com/store/item.php?id=100190>

If you were unable to attend the Symposium, this is your chance to get a copy of the Proceedings. Copies are limited and available on a first-come, first-served basis. Cost is \$25.00.

Symposium Media Post Processing

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Gould Smith, WA4SXM is writing an article for the Journal about the 2011 Symposium. Please email Gould any photos or links to your online image storage to include in the article to [wa4sxm@amsat.org](mailto:wa4sxm@amsat.org).

Dan Schultz, N8FGV is requesting help from someone with professional grade sound editing software who is willing to invest a few hours in a project of importance to AMSAT's historical archives. Please contact Dan if you can help.: [n8fgv@amsat.org](mailto:n8fgv@amsat.org).

[ANS thanks the 2011 Symposium Committee for the above information]

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SB SAT @ AMSAT \$ANS-317.02

This Week 50 Years Ago: OSCAR 1 Announcement

AMSAT News Service Bulletin 317.02

From AMSAT HQ SILVER SPRING, MD.

November 13, 2011

To All RADIO AMATEURS

BID: \$ANS-317.02

The AMSAT News Service is re-running the Project OSCAR Newsletters to commemorate the 50th anniversary of OSCAR 1. During the November/December 2011 time frame you will be able to share the excitement of the launch campaign that started it all 50 years ago.

The Newsletters were hand-typed back in 1961. Thanks to Don Ferguson, KD6IRE for scanning the original documents announcing OSCAR 1.

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Project OSCAR Newsletter November 15, 1961 at 1345 PST

First News Release,

U. S. RADIO AMATEURS TO LAUNCH "PIGGY-BACK" SATELLITE

SUNNYVALE, CALIF. -- A hitch-hiking radio transmitter that will speak to thousands of amateur radio operators throughout the world is scheduled to be launched into space orbit next month, announced the American Radio Relay League.

Weighing only 10 pounds, the satellite has been designed, built and tested by a group of California (Peninsula) radio amateurs organized as the Project Oscar Association of the League.

"OSCAR" stands for Orbital Satellite Carrying Amateur Radio. The radio "ham's" transmitter beacon will be carried into space aboard a scheduled space vehicle and will radiate signals in a world-wide amateur frequency band of 2-meters, radio amateur M. C. Towns, Jr. (Saratoga, Calif.) announced today. Transportation into space will be provided by an Air Force vehicle to be launched 'from Vandenberg Air Force Base, Calif.

Once in orbit, the Air Force vehicle will "kick away" the piggy-back radio amateur satellite, leaving it to follow its own course around the earth. The mother satellite will then continue to perform the experiments for which it was intended. Radio Amateur Towns, the Oscar Association Chairman, stressed that Project Oscar "is a serious, civilian, non-commercial effort to obtain information from outer space, and to introduce radio amateurs and lay scientists to new concepts in outer space communication.

"This miniature radio transmitter will be tracked and observed by radio amateurs and all interested observers throughout the world. "It will serve to instruct the radio amateur in the art of observing and tracking a moving space object. In addition, the mass of data gained from world-wide observations will provide information unobtainable by any other means.

"There are an estimated 300,000 licensed radio amateurs in the world, and the American Radio Relay League hopes a large number of these hobbyists will participate in the forthcoming experiments."

Towns noted that the radio amateur has, in the past, been a pioneer in various fields of radio communication, and that hundreds of U. S. radio amateurs are now engaged in space research and other space activity.

The 10-pound Oscar satellite consists of a low-power beacon transmitter contained in a rectangular metal casing about a foot long. It will send out a continuous Morse code signal of the letters H-I, four dots followed by two dots. Later satellites proposed to be built by the Oscar Association may both receive and transmit amateur signals.

As soon as this transmitter is in orbit, notification will be flashed to radio amateurs throughout the world by the American Radio Relay League, the international organization of radio amateurs which is sponsoring and cooperating in the project. "Radio propagation, Heaviside layer refraction, antenna efficiency and other data can be gathered and correlated from thousands of points over the world's surface," Towns said.

"The cause of good will," Towns continued, "will be served in that radio amateurs, located in virtually every country of the world, would have a common amateur interest in observing and tracking their own satellite, and in exchanging scientific information relative to improved equipment for receiving the satellite signals."

The Oscar transmitter is designed to operate on a frequency of 145 megacycles and can be heard by home experimenters having simple receiving equipment, Towns said. "Cooperation in the forthcoming tests is invited from any interested party," the Oscar Chairman stated, pointing out that support has already been contributed by the Air Force and numerous private concerns interested in furthering communication knowledge, and entirely on a no-cost basis of lending a helping hand to the amateurs in their own project.

The radio amateur satellite idea originated in 1959 with a Los Angeles amateur operator, Don Stoner, who suggested that radio amateurs had the technical know-how to build their own satellite if someone only had the vehicle to carry it into space. He, along with radio amateur Fred Hicks, of Campbell, California, and other radio "hams" kept the idea alive and formed the Project Oscar Association. The idea spread among radio clubs of the Los Angeles and San Francisco area and gathered support from radio amateurs nation-wide, including the radio amateur organization, the American Radio Relay League.

Radio "ham" Nicholas K. Marshall, technical director of the Oscar program, noted that the soon-to-be-launched satellite is but a first step in the overall Oscar concept.

"Later satellites to be built by the Oscar group will perhaps receive and transmit amateur test signals for specific space experiments," he said. Marshall noted that there are approximately 12,000 radio amateurs in the Soviet Union, and that the Oscar Association hopes to receive tracking data from some of them also.

[ANS thanks Don Ferguson, KD6IRE and Project OSCAR for the above information]

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SB SAT @ AMSAT \$ANS-317.03  
UKube-1 Final Design Approved

AMSAT News Service Bulletin 317.03

From AMSAT HQ SILVER SPRING, MD.  
November 13, 2011  
To All RADIO AMATEURS  
BID: \$ANS-317.03

On November 8 AMSAT-UK posted the news that the UK space Agency and Astrium have approved the final design of UKube-1 - the UK's first CubeSat mission. The full story can be read at:  
<http://www.uk.amsat.org/2011/11/08/ukube-1-final-design-approved/>

On November 3-4 a young team of engineers from Clyde Space presented their final design to a team of experts for the Critical Design Review (CDR) - the typical 'gateway' for space missions to proceed into the flight build and implementation phase.

The CDR for Ukube-1 thus marks an important point in the development of the mission, establishing the robustness of the design, the level of technical risk and the schedule/resourcing for the completion of all the tasks to build the flight spacecraft.

At the CDR, the review panel scrutinized the design in detail to ensure it was sufficiently mature for flight. Key areas of focus included the structure and mechanisms, the communications system, the on board software and processing, the attitude control system and power generation.

At the end of the meeting the review board concluded that Ukube-1 had successfully passed CDR.

The next stage is the implementation of the mission that will lead to a launch on a Russian Dneper rocket (ex ICBM converted for small satellite launches) towards the end of 2012.

More on the aims and objectives of Ukube-1 can be found on the UK Space Agency website:  
<http://www.bis.gov.uk/ukspaceagency/missions/ukube-pilot-programme>

The UK Space Agency's pilot programme to design and launch a CubeSat, a miniature cube-shaped satellite that will allow the UK to test cutting-edge new technologies in space. In March 2011 four payloads were finally selected to fly on UKube-1. These will be integrated onto the spacecraft, which measures just 10cm x 10cm x 34cm, by Clyde Space. In addition UKube-1 will fly FunCube, an educational payload provided by AMSAT-UK, with the goal of enthusing and education young people about space, electronics, physics and radio.

[ANS thanks AMSAT-UK for the above information]

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SB SAT @ AMSAT \$ANS-317.04  
Strong Signals Received From Explorer-1 Prime Cubesat

AMSAT News Service Bulletin 317.04  
From AMSAT HQ SILVER SPRING, MD.  
November 13, 2011  
To All RADIO AMATEURS  
BID: \$ANS-317.04

Montana State University built the Explorer-1 [Prime] to replicate the scientific mission of the Explorer-1 mission which was launched on Jan. 31, 1958, and detected the existence of a band of energetic

charged particles held in place by the Earth's magnetic field. The band was named the Van Allen Radiation Belt after the late James Van Allen, who directed the design and creation of instruments on the original Explorer-1 satellite.

Satellite: Explorer-1[PRIME] Flight Unit 2  
Downlink Freq: 437.505 MHz  
EIRP: -0.7dBW  
Modulation Scheme: Non-Coherent FSK  
Protocol: KISS Custom  
Baud Rate: 1200  
<http://ssel.montana.edu/elp/>

Nader ST2NH added an article to his blog describing how to receive the 437.505 MHz LSB data telemetry from Explorer-1[PRIME].

Nader describes how to set up MiXW and the E-1P Telemetry Decoder software: <http://tinyurl.com/cwvuwov> (blogspot.com)

This page includes the link to download the E1-P software from Montana State University.

Nader posted his video showing reception of an E-1P pass at: [http://www.youtube.com/watch?feature=player\\_embedded&v=7S5CMwFlxeo](http://www.youtube.com/watch?feature=player_embedded&v=7S5CMwFlxeo)

ST2NH Blog with all of Nader's articles:  
<http://st2nh-blogger.blogspot.com/>

ST2NH YouTube channel showing several cubesat decoding passes:  
<http://www.youtube.com/user/st2nh/>

Mike Rupprecht's DK3WN SatBlog has an article about his experience in receiving and decoding E1-P, see:  
<http://www.dk3wn.info/p/?p=23528>

[ANS thanks Nader, ST2NH and Mike, DK3WN for the above information]

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SB SAT @ AMSAT \$ANS-317.05  
ESA Sponsors Students to Attend the European CubeSat Symposium

AMSAT News Service Bulletin 317.05  
From AMSAT HQ SILVER SPRING, MD.  
November 13, 2011  
To All RADIO AMATEURS  
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As part of the ESA Conference Opportunities for Sponsored Students (ECOSS) Programme, the ESA Education Office is pleased to be able to offer sponsorship to European students interested in attending the European CubeSat Symposium (30 Jan - 1 Feb 2012, Brussels). Highly qualified full-time students from ESA Member or Cooperating States are encouraged to apply for ESA Sponsorship.

Students selected by ESA's Education Office will be reimbursed their conference registration fee and up to a maximum of 300 Euro in travel and accommodation expenses. Sponsorship will be in the form of a single reimbursement after the conference.

Before applying students must visit the conferences page of the ESA Education Portal ([www.esa.int/education](http://www.esa.int/education)>Conferences) and:

- + Check their eligibility for the programme under the "Sponsorship Conditions" link.
- + Familiarize themselves with the content of the "How to Apply" link.

To apply, please visit ESA Education registration system:  
<http://www.joinspace.org>

The deadline for sponsorship applications is January 4th 2012.

The deadline for submitting abstracts is postponed to 11 Nov 2011 for students only. Student who submitted abstracts before can also apply for ESA sponsorship.

Check <http://www.vki.ac.be/CubeSatSymposium/> for details.

[ANS thanks Graham Shirville, G3VZV for the above information]

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SB SAT @ AMSAT \$ANS-317.06  
Satellite Shorts From All Over

AMSAT News Service Bulletin 317.06  
From AMSAT HQ SILVER SPRING, MD.  
November 13, 2011  
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- + Symmetricom announced a mass-produced Chip Scale Atomic Clock oscillator which maintains atomic clock accuracy and stability. More information at:  
<http://www.symmetricom.com/products/quantum-atomic-oscillators/>
- + Christophe has produced a handy chart showing the CubeSat UHF down-link frequencies.  
[http://cubesat.free.fr/IMG/pdf/Cubesat\\_-\\_frequence\\_bande\\_U.pdf](http://cubesat.free.fr/IMG/pdf/Cubesat_-_frequence_bande_U.pdf)
- + In an effort to help increase interest in satellites, a new award has been created for working five (5) different hams in the EM55 grid. You do not have to be in your home grid to count the stations worked. There are several satellite ready hams in EM55: WA4NVM, WA4HFN, WB4LHD, WA4OV0, KI40TG, KD4NOQ, KJ4BIX, AJ4KF, W5KUB, N4MGT AA4HV K4FEG. Send your log to WA4NVM or WA4HFN for checking, along with your current mailing address. The award is free and should any donations be sent, they will be forwarded to AMSAT along with your call and name. This award is effective for contacts made beginning on 1 June 2011.
- + The Super Sensitive High Definition TV, or SS-HDTV, camera on the space station can document new and more detailed footage of the dynamic interactions that take place in the area between the Earth's atmosphere and the vacuum of space, known as the cosmic shore. Night photography now shows more detail than previously possible. JAXA and NHK posted a video of a night time ISS pass over Japan:  
<http://www.youtube.com/watch?v=82vXwLdqNzU&feature=related>

[ANS thanks everyone for the above information]

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SB SAT @ AMSAT \$ANS-317.07  
ARISS Status - 7 November 2011

AMSAT News Service Bulletin 317.07

From AMSAT HQ SILVER SPRING, MD.

November 13, 2011

To All RADIO AMATEURS

BID: \$ANS-317.07

#### 1. Swiss Students Speak with Astronaut Aboard ISS

On Monday, October 31, students attending Kantonsschule Zug in Zug, Switzerland connected with Astronaut Mike Fossum, KF5AQG on the ISS via Amateur Radio on the International Space Station (ARISS). An audience of 600 was on hand to witness the contact and watched as 8 students got in 16 questions before the ISS went over the horizon. The contact highlighted lessons on gravity, orbits, the ISS and its flight path, as well as electromagnetic waves and amateur radio. This ARISS event was held in celebration of the school's 150th anniversary. Media coverage included two television stations and one radio station.

#### 2. Californian Students Radio ISS Astronaut

San Diego, California students from Sundance Elementary School participated in an Amateur Radio on the International Space Station (ARISS) contact on Tuesday, November 1. Astronaut Mike Fossum, KF5AQG answered questions about the ISS mission, space and how space affects the human body. The contact was integrated into lesson plans about radios, radio waves, space and space-related topics. The local ham radio club gave presentations to the youth. Sign On San Diego covered the event in an article:  
<http://www.signonsandiego.com/news/2011/nov/04/poway-students-connect-astronaut/>

[ANS thanks Carol, KB3LKI, for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

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This week's ANS Editor,  
Lee McLamb, KU40S